

**Notice of Allowability**

Application No.

10/814,653

Examiner

Ryan A. Jarrett

Applicant(s)

KOPELMAN ET AL.

Art Unit

2125

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 5/16/05.
2. ☒ The allowed claim(s) is/are 1-28.
3. ☒ The drawings filed on 01 April 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee. The changes to the claims were made to bring the claims into compliance with 35 U.S.C. 101. The changes in the specification were made since hyperlinks are not allowed in the specification. See MPEP 608.01.

2. The application has been amended as follows:

In claim 1 line 1, "method" was replaced with --computer-implemented method--.

In claim 16 line 1, "method" was replaced with --computer-implemented method--.

On page 12 line 23, "in <http://www.ivoclar.co.uk/technician/nonmetal2.html>, *mutatis mutandis*, for example" was replaced with a period (---).

On page 13 line 1, "in

[http://www.degudent.com/Products/Cercon\\_smart\\_ceramics/index.asp](http://www.degudent.com/Products/Cercon_smart_ceramics/index.asp), *mutatis mutandis*" was deleted.

### ***Allowable Subject Matter***

3. Claims 1-28 are allowed.

4. The following is an examiner's statement of reasons for allowance:

The prior art of record fails to teach or fairly suggest, based on a set of CNC instructions that are generated corresponding to a 3D virtual model of a dental coping, fabricating a wax model of the dental coping using a CNC milling machine by milling an outer surface of the wax model corresponding to an outer surface of the 3D virtual model and by **milling an inner surface of the wax model** corresponding to the inner surface of the 3D virtual model, in combination with the remaining features and elements of the claimed invention.

In the prior art, wax models of dental prosthetics are mainly fabricated using rapid prototyping systems, such as thermojet printers. This is the case with Embert et al. US 6,691,764. Embert et al. teaches most all features of Applicant's claim 1 (see Fig. 4). However, in step 64 of Fig. 4, Embert et al. produces a wax prototype of the dental prosthesis using an automated prototyping system. Specifically, Embert et al. uses the Thermojet™ by 3D Systems Inc. Although Embert et al. discloses that other devices may be used without departing from the spirit and nature of the invention (col. 4 lines 22-24), there is no teaching or suggestion that the device could be a CNC milling machine. Embert's implication here is that another type of automated prototyping system could be used.

Becker et al. US 4,411,626 discloses a process for preparing a crown portion to be fixed on a tooth, comprising generating a set of milling instructions corresponding to a 3D model of a tooth stump, and based on the set of instructions, fabricating a wax model using a milling machine (e.g., col. 3 lines 59-68). However, only the outer surface of the

wax model is milled. There is no milling of the inner surface of the wax model since the wax molding material is applied to the tooth stump by completely covering the tooth stump with the molding material. The outer surface of the molding material is then milled based on scanned 3D virtual data of the tooth stump. The wax model is then removed from the tooth stump, with the inner surface of the wax model being automatically "formed" as a result of the wax being pressed onto the tooth stump (e.g., col. 3 line 41- col. 4 line 13). There is no milling of the inner surface of the wax model.

O'Brien et al. US 2002/0013636 discloses a dental prosthesis manufacturing method that is similar to that of Embert et al., in that it uses a rapid prototyping system to fabricate a wax model (e.g., [0009]).

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

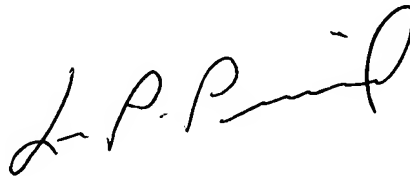
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan A. Jarrett whose telephone number is (571) 272-3742. The examiner can normally be reached on 10:00-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ryan A. Jarrett  
Examiner  
Art Unit 2125

5/26/05

A handwritten signature in black ink, appearing to read "L. Picard", with a stylized flourish at the end.

LEO PICARD  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100